REMARKS

Claims 1-35 are pending in the application. Claims 1-5, 7-17, 20, 21, 24-31, and 33-35 have been amended to clarify the invention and are not intended to narrow the scope of the claims. Claims 1-7, 12-32, 34, and 35 stand rejected under 35 U.S.C. § 102(b) as anticipated by Kobayashi et al., U.S. Patent No. 5,533,413 ("Kobayashi et al."), and claims 8-11 and 33 stand rejected under 35 U.S.C. § 103(a) as obvious over Kobayashi et al. in view of Klimasauskas et al., U.S. Patent No. 5,877,954 ("Klimasauskas et al."). Applicants respectfully traverse the rejections of the claims. Reconsideration in light of the remarks presented below is respectfully requested.

As an initial matter, while applicants appreciate the examiner's consideration of the references under the "U.S. Patent Documents" and the "Foreign Patent Documents" headings of the Form PTO-1449 of the Supplemental Information Disclosure Statement filed on December 6, 2002 (Paper No. 5), it appears that the examiner has not considered the Search Report listed under the "Other Documents" heading of this paper, as the examiner has not initialed this section of the paper. The examiner is respectfully requested to consider this reference, to the extent the examiner has not already done so, and provide applicants with a copy of the Form PTO-1449 suitably initialed to indicate such consideration in the next action. The examiner's attention to this matter is greatly appreciated.

Furthermore, it is noted that the Office Action Summary Sheet enclosed with this Office action did not indicate an acknowledgment of the claim for priority under 35 U.S.C. § 119(e) (to a provisional application). Instead, the Office Action Summary Sheet mistakenly indicates acknowledgment of a claim for priority under 35 U.S.C. §§ 120 and/or 121. The examiner is referred to the declaration, which includes a claim for priority under § 119(e), and to the claim for priority provided under the "Related Applications" heading in the specification, which also includes a specific reference to the earlier-filed provisional application from which priority is claimed. Accordingly, it is requested that the claim for priority under 35 U.S.C. § 119(e) be acknowledged in the next action.

Each of claims 1-35 recites, *inter alia*, a method or system for use within a process plant that estimates a level of degradation of a process entity at a first time and compares the estimated level of degradation of the process entity at the first time to a predetermined desired level of degradation of the process entity at the first time.

Despite the examiner's contention, Kobayashi et al. does not disclose comparing an estimated level of degradation of the process entity at a first time to a predetermined desired level of degradation of the process entity at the first time. While Kobayashi et al. discloses an equipment diagnosis system that models the state of equipment using an equipment state model to output information on the functional state, the deterioration state, the remaining life time state, etc., Kobayashi et al. does not disclose or suggest comparing the output information from the equipment state model to a predetermined desired level of degradation, as recited by each of claims 1-35. Instead, the equipment diagnosis system of Kobayashi et al. compares the output information from the equipment state model with an actual maintenance result of the equipment that is measured at the time of maintenance of the equipment (see col. 4, ll. 24-27; col. 6, ll. 33-37; and col. 7, ll. 48-53), not with a desired value.

Moreover, Kobayashi et al. does not disclose or suggest an incentive for or a desirability of comparing the output information from the equipment state model to a predetermined desired level of degradation which is useful in, for example, situations in which a measurement of the actual level of degradation cannot be obtained. As discussed in the detailed description of applicants' specification, it may be impossible to measure the level of degradation of a piece of equipment during operation of the equipment. For example, it may be impossible to measure the actual coking level within a furnace during operation of the furnace due to the high temperatures within the furnace. Yet it still may be desirable to make decisions within the process based on an estimate of the coking level to maximize the chances of the process being able to run for a preset length of time before maintenance. Kobayashi et al. does not even recognize this problem, much less disclose or suggest an incentive for or desirability of solving this problem by comparing an estimated level of degradation of a process entity to a predetermined desired level of degradation of the process entity, as recited by each of claims 1-35.

Additionally, Kobayashi et al. fails to disclose or suggest a method or system for use within a process plant that alters the operation of the process entity based on a comparison of an estimated level of degradation of a process entity at a first time to a predetermined desired level of degradation of the process entity at the first time to drive an estimated level of degradation of the process entity at a second time to be approximately equal to a predetermined desired level of degradation of the process entity at the second time, as recited

by claims 1-25. Instead, the equipment diagnosis system of Kobayashi et al. changes the parameters or coefficients of the equipment state model based on a comparison of the output information from the equipment state model with an actual, measured maintenance result of the equipment so that the difference between the output information from the equipment state model and the actual, measured maintenance result information is reduced to zero or a small value (see col. 4, ll. 27-32; col. 7, ll. 54-60; and col. 10, l. 63 to col. 11, l. 6). In other words, the equipment diagnosis system of Kobayashi et al. changes the parameters of the model used to estimate the equipment state. The equipment diagnosis system of Kobayashi et al. does not change the operation of the process entity, as recited by claims 1-25.

Still further, Kobayashi et al. fails to disclose or suggest a method of using a degradation level of a process entity within a process plant that includes using a result of a comparison of the estimated level of degradation of a process entity at a first time to a predetermined desired level of degradation of the process entity at the first time to produce an index defining a utilization amount of the process entity, as recited by claims 26-35. As discussed above, Kobayashi et al. changes the parameters or coefficients of the model based on a comparison of the model output with an actual, measured maintenance result of the equipment so that the difference between the model output and the actual, measured maintenance result information is reduced to zero or a small value. Kobayashi et al. does not disclose or suggest an incentive for or the desirability of using the comparison result to produce an index defining a utilization amount of the process entity, as recited by claims 26-35.

In a similar manner, Klimasauskas et al. fails to disclose or suggest the claimed combination of elements recited in each of the pending claims. While Klimasauskas et al. describes a hybrid analyzer for modeling a process, Klimasauskas et al. does not disclose or suggest comparing an estimated level of the degradation of a process entity at a first time to a predetermined desired level of degradation of the process entity at the first time, as recited by claims 1-35. Additionally, Klimasauskas et al. does not disclose or suggest altering the operation of the process entity based on that comparison, as recited by claims 1-25. Still further, Klimasauskas et al. does not disclose or suggest using that comparison to produce an index defining a utilization amount of the process entity, as recited by claims 26-35.

For the reasons indicated above, applicants respectfully submit that neither Kobayashi et al. nor Klimasauskas et al. discloses or suggests the claimed combination of elements

recited by claims 1-35. It is clear that the cited references must make a suggestion of or provide an incentive for the claimed combination of elements to establish a *prima facie* case of obviousness. *See In re Oetiker,* 24 U.S.P.Q.2d 1443, 1446, (Fed. Cir. 1992); *Ex parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. 1985). None of the cited references discloses or suggests comparing an estimated level of degradation of a process entity at a first time to a predetermined desired level of degradation of the process entity at the first time, as recited by each of the pending claims. Additionally, none of the cited references discloses or suggests altering the operation of the process entity based on the comparison to drive an estimated level of degradation of the process entity at a second time to be approximately equal to a predetermined desired level of degradation of the process entity at the second time, as recited by claims 1-25. Still further, none of the cited references discloses or suggests using a result of the comparison to produce an index defining a utilization amount of the process entity, as recited by claims 26-35. As a result, it follows that none of the cited references anticipates any of the pending claims and that no combination of the cited references renders any of the pending claims obvious.

For the foregoing reasons, reconsideration and withdrawal of the rejections of the claims and allowance thereof are respectfully requested. Should the examiner wish to discuss the foregoing or any matter of form, in an effort to advance this application toward allowance, the examiner is urged to telephone the undersigned at the indicated number.

Respectfully submitted,

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